DOCUMENT RESUME

ED 259 685 HE 018 613

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TITLE A Study of Male and Female Faculty Promotion and Tenure Rates. AIR 1985 Annual Forum Paper.
PUB DATE May 85
NOTE 27p.; Paper presented at the Annual Forum of the Association for Institutional Research (25th, Portland, OR, April 28-May 1, 1985).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Employment Practices; *Faculty Promotion; Higher Education; Institutional Research; Longitudinal Studies; Males; *Sex Differences; State Universities; Teacher Employment; *Tenure; Women Faculty
IDENTIFIERS *AIR Forum; *University of Maryland College Park

ABSTRACT

Sex differences in tenure and promotion rates and time to tenure and promotion at the University of Maryland, College Park, were studied longitudinally. The study population consisted of tenure-tract assistant and associate professors appointed or promoted in 1973, 1975, and 1977, excluding part-time and visiting faculty. Campus-wide, 42 percent of the female and 43 percent of the male faculty in the assistant professor class of 1973 were tenured, and 25 percent of the females versus 27 percent of the men in 1977 were tenured. Promotion rates for the assistant professors were very similar to their tenure rates. Because of the small number of faculty who were hired as associate professors, statistical analyses could not be conducted. Results indicated no statistically significant sex differences in promotion and tenure rates and in time to promotion and tenure for all classes of assistant and associate professors studied. The proportions of faculty promoted and tenured, however, had declined substantially from the assistant and associate professor classes of 1973 to the classes appointed in 1977. Problems are noted of doing a study of this type (e.g., small sample sizes, lack of data on important variables, political pressures and sensitivity, confounding effects of policy changes, and market changes). (SW)

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ED259685

AIR Paper
March 1985

A Study of Male and Female Faculty Promotion and Tenure Rates

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THE ASSOCIATION FOR INSTITUTIONAL RESEARCH

This paper was presented at the Twenty-Fifth Annual Forum of the Association for Institutional Research held at the Portland Hilton in Portland, Oregon, April 28-May 1, 1985. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum papers.

Elizabeth F. Fox, Chair
Forum Publications Editorial
Advisory Committee

ABSTRACT

Continuing a series of studies to examine issues relating to equal employment opportunity for male and female faculty, the Office of Institutional Studies conducted a longitudinal study of sex differences in tenure and promotion rates and time to tenure and promotion at a major public research university. Generally, the results indicated no statistically significant sex differences in promotion and tenure rates and in time to promotion and tenure for all classes of assistant and associate professors studied. The proportions of faculty promoted and tenured, however, had declined substantially from the assistant and associate professor classes of 1973 to the classes appointed in 1977. Also discussed are the problems in doing a study of this type (e.g., small sample sizes, lack of data on important variables, political pressures and sensitivity, confounding effects of policy changes, market changes, etc.).

A STUDY OF MALE AND FEMALE FACULTY PROMOTION AND TENURE RATES

This study is part of a series of studies undertaken by the University of Maryland at College Park to examine issues related to equal employment opportunity for male and female faculty. Prior studies, dating back at least to 1972, focused mainly on salary issues. Since 1980, the campus has conducted annual reviews of faculty members' salaries. These past salary studies, which examine salary differences only within faculty rank, do not take into account two major factors influencing salary status: promotion and tenure decisions. Any evidence of sex differences in these decisions would indicate possible problems which are not accounted for by the annual salary studies. This study, thus, was needed to assess the equity of decisions affecting promotion and tenure.

The evaluation of a tenure and promotion decision-making process is a difficult undertaking, not only because faculty promotion and tenure committee discussions are confidential, but also because there are multiple levels in the process (department, division, Chancellor, President), criteria vary from discipline to discipline and change over time, most of the criteria are difficult to quantify, and the small numbers of faculty involved frequently make comparisons and statistical analyses difficult. Despite these problems, in the summer of 1981, the Office of Institutional Studies undertook this longitudinal analysis of faculty promotion and tenure rates and time to promotion and tenure to determine whether rates and times differ significantly for women and men.

Review of Literature

There are many published studies of salary differences between male and female faculty but there are very few dealing with sex differences in promotion and tenure rates and time to promotion and tenure. Published studies are weakened by the small numbers of women in many fields, uneven distribution of male and female faculty in the disciplines, and a lack of useable data on relevant variables (e.g., quantity and quality of publications, teaching evaluation, quality of graduate school, prior academic experience, etc.).

Using stepwise multiple regression to analyze 1969 national data from a Carnegie/American Council of Education survey of college and university teaching faculty, H. Astin and Bayer (1972) found that, controlling for a large number of significant and relevant variables, sex did contribute significantly to the explanation of rank differences. However, the five most important predictors of rank achieved were: 1) highest degree, 2) scholarly productivity, 3) years employed in academe, 4) type of institution

in which employed, and 5) time spent in administrative activities. Applying the same criteria, with the same weights in awarding rank to women as are applied to men, the researchers found "the average compensatory increase in rank would be ... an average of one-fifth step" (p.115).[1]

Analyzing the same national data, but concentrating only on faculty in departments of education, C. Weidman and J. Wiedman (1975) found that sex discrimination "in the areas of rank and salary appears to be more pervasive in the universities than in four-year colleges" and that female education professors are almost twice as likely as their male counterparts to hold non-tenure track positions (acting, visiting). Female education faculty on average earned less than their male counterparts at all ranks, but those with doctorates were found to have published fewer articles.

At the University of Michigan, Salthouse et al. (1978) developed a set of fictitious cases to present to 20 senior faculty members. These faculty members were to judge the promotability of each case. The cases varied from each other in level of teaching and research competence, type of information presented, sex of employee, and academic department. Using analysis of variance, the researchers determined that neither sex nor academic department had a significant effect on the promotion decisions; however both research and teaching ability did.

A study of three Indiana colleges (Federation of the Indiana Chapters, AAUP, 1972), found that women spent more time in rank (two years longer as assistant and one-half to one year longer as associate professors) before being promoted than did men. Contrary to these results, a University of Maryland, College Park study (Division of Institutional Research, UMCP, 1972) reported that men tended to spend more time in rank than women.

In 1978, the Maryland State Board for Higher Education (1978) conducted a study of male and female salary and promotion differences. In the promotion analysis (multiple regression) for the three campuses which were studied (UMCP, UMAB, and UMBC), they reported that "no clear pattern emerged among the predictors." Furthermore, they concluded that other relevant factors, not available in this analysis, should be included and that "any definitive analysis of promotion would have to involve longitudinal data."[2]

Research Design

The purpose of this study is to determine if there are any statistically significant differences between male and female faculty promotion and tenure rates or time to promotion and tenure at The University of Maryland at College Park.

Research Questions

The research questions addressed in the current study are: Are faculty tenure and promotion rates (i.e., proportions tenured and promoted) significantly different for men and women in related academic units, controlling for rank, years in rank, and highest degree? Does length of time to tenure and promotion vary significantly between men and women, controlling for rank, years in rank, highest degree, and academic unit? Have the average number of years to tenure and promotion and rates of tenure and promotion increased or decreased over time for men and/or women, controlling for rank, years in rank, highest degree, and academic unit?

Methodology

The study was designed as a longitudinal comparison of the proportions of male and female assistant and associate professors promoted to the next rank, the proportions of these persons granted tenure, and the average number of years spent in rank before being promoted or tenured.

Population. The study population included all tenure-track assistant and associate professors appointed (or promoted) in 1973 through 1978. Because of the tremendous volume of data that had to be collected, verified and corrected manually, it was necessary to limit the number of cases by extracting a sample. This was accomplished by selecting for analysis faculty who attained their tenure-track rank in odd-numbered years (1973, 1975, and 1977). Fall 1973 was chosen as the initial year because it coincides with the advent of the campus' academic division structure. Fall 1977 was selected as the last class year in the sample because it is the last year in which faculty appointed as assistant professors, assuming normal tenure and promotion policies were followed, would have mandatory tenure/promotion decisions by fall 1983. Excluded from the population were all part-time, visiting and non-tenure track faculty.

Data Elements. The computerized personnel data base provided the starting point for the data elements for the faculty in the study. Other essential elements (e.g., tenure date, whether or not leave-without-pay counted as time in service toward tenure) had to be obtained by searching the source document personnel file (hard copy or microfilm records) and by contacting the academic departments. Additionally, the Assistant Vice Chancellor for Academic Affairs had to supply or verify tenure status, tenure date, rank, rank date, termination status, termination date, and/or leave status for almost all of the faculty in the sample.

Statistical Analysis. Faculty promotion and tenure rates were analyzed by cohort class years (1973, 1975, and 1977) for each of three categories: assistant professors, associate professors who were hired at the associate professor rank, and associate professors who were promoted to the associate professor rank in the class years.

The null hypothesis for the study predicts that the tenure and/or promotion rates for men and women in each of the above classes should be equal; there should be no relationship between sex and promotion and/or tenure rates. To determine whether a systematic relationship existed between sex and tenure and/or promotion rates the chi-square (X^2) test of statistical significance was used. However, when there were fewer than 21 cases, Fisher's exact test was applied to correct for the small number of cases. When there were more than 21 cases but fewer than 10 in any one cell, Yates' "continuity correction" was applied.

Time to tenure and/or promotion for men and women also was compared by class and academic unit. A t-test was used to determine whether or not a difference between male and female faculty, in terms of the mean number of years to tenure and/or promotion, was likely to have occurred by chance and, therefore, whether it was statistically significant.

Methodological Limitations

The results of this study must be interpreted with caution because of the major methodological limitations imposed by a number of factors. The major limitation was the small number of women in each rank within academic unit (division) and the small numbers of both men and women in the "Hired as Associate Professor" group. This small "n" problem greatly restricted the number of controlling variables that could be used in the analysis. For example, statistical comparisons at the department or college level could not be made for any of the classes and comparisons by division could be made only for the "Assistant Professor" classes.

The study also suffers from a lack of information on variables which could enhance its value and relevance. These variables include:

1) prior academic experience (number of years in rank at other institutions);
2) publication record (productivity index);
3) quality of graduate school;
4) teaching evaluations;
5) reputation (local, national, international);
6) departmental criteria (and weighting of criteria) for tenure and promotion;

7) tenure and promotion review dates and decisions (unsuccessful attempts).

Without this information it is difficult to determine whether the same criteria were used for men and women, whether and how the criteria changed over time, what characteristics differentiated those who were successful in attaining tenure or promotion from those who were not, which faculty were reviewed for but denied tenure or promotion, and the effect of the timing of negative decisions on early terminations.

Results

The results are presented separately for the three groups included in the study: Assistant Professors, Hired as Associate Professors, and Promoted to Associate Professors.

Assistant Professors

Table 1 shows the numbers and percentages of male and female assistant professors for the three classes and by academic division. The small numbers of women in each division are immediately apparent. Also apparent is their substantial increase over the five years from 1973 to 1977. The class of 1977 had 28 female tenure-track assistant professors compared to 12 in the class of 1973. Female representation increased from 16 percent in the class of 1973 to 27 percent in the class of 1975 and to 34 percent in the class of 1977. The number and percentage of women increased in every division except the Division of Behavioral and Social Sciences (BSOS) where the percentage of women stayed about the same in the three classes.

According to campus tenure and promotion policy, these tenure-track assistant professor classes would be scheduled for mandatory tenure and promotion review during their fifth academic year (AY),[3] with a decision rendered at the end of their fifth year, unless special conditions were agreed upon before the mandatory review (e.g., granting of leave without pay which can stop the "tenure clock"). On a regular schedule, therefore, the class of 1973 would have been reviewed prior to or during AY 1977-78, the class of 1975 would have been reviewed AY 1979-80, and the class of 1977 would have been reviewed AY 1981-82.

Part-time appointments at any rank do not carry tenure and tenure as an assistant professor (without promotion to associate rank) requires six years of full-time service in that rank at UMCP. Therefore, under normal circumstances for tenure-track assistant professors, tenure and promotion would occur after five years of service, whereas tenure without promotion would be effective after six years.

Tenure and Promotion Rates. Table 2 shows the tenure rates (as of fall 1983) for men and women in the three classes of assistant professors. Those not tenured were not

Table 1

Assistant Professor Classes, by Sex and Division

Division[a]	Assistant Professor Class					
	1973		1975		1977	
	Men	Women	Men	Women	Men	Women
1. ALSC	11 (92%)	1 (8%)	11 (92%)	1 (8%)	10 (83%)	2 (17%)
2. MPSE	16 (100%)	0 (0%)	15 (94%)	1 (6%)	10 (77%)	3 (23%)
3. BSOS	14 (82%)	3 (18%)	21 (84%)	4 (16%)	10 (83%)	2 (17%)
4. A & H	10 (77%)	3 (23%)	11 (55%)	9 (45%)	17 (74%)	6 (26%)
5. HUCR	12 (71%)	5 (29%)	7 (44%)	9 (56%)	8 (35%)	15 (65%)
TOTAL	63 (84%)	12 (16%)	65 (73%)	24 (27%)	55 (66%)	28 (34%)

[a]ALSC = Agricultural and Life Sciences
MPSE = Mathematical and Physical Sciences and Engineering
BSOS = Behavioral and Social Sciences
A & H = Arts and Humanities
HUCR = Human and Community Resources

Table 2

Assistant Professor Tenure Rates, by Sex and Cohort Class Year
(As of Fall 1983)

Division[a]	Class of 1973				Class of 1975				Class of 1977			
	Men		Women		Men		Women		Men		Women	
	Tenured	Total	Tenured	Total	Tenured	Total	Tenured	Total	Tenured	Total	Tenured	Total
1. ALSC	7 (64%)	11	0 (0%)	1	6 (54%)	11	1 (100%)	1	3 (30%)	10	0 (0%)	2
2. MPSE	7 (44%)	16	0 (-)	0	8 (53%)	15	0 (0%)	1	4 (40%)	10	2 (67%)	3
3. BSOS	4 (29%)	14	2 (67%)	3	7 (33%)	21	0 (0%)	4	2 (20%)	10	0 (0%)	2
4. A & H	3 (30%)	10	1 (33%)	3	3 (27%)	11	6 (67%)	9	5 (29%)	17	1 (17%)	6
5. HUCR	6 (50%)	12	2 (40%)	5	2 (29%)	7	1 (11%)	9	1 (12%)	8	4 (27%)	15
TOTAL	27 (43%)	63	5 (42%)	12	26 (40%)	65	8 (33%)	24	15 (27%)	55	7 (25%)	28

[a]ALSC = Agricultural and Life Sciences
MPSE = Mathematical and Physical Sciences and Engineering
BSOS = Behavioral and Social Sciences
A & H = Arts and Humanities
HUCR = Human and Community Resources

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necessarily denied tenure. They may have left UMCP before a tenure decision or after a negative tenure decision or may still be employed at UMCP but not tenured as of fall 1983.

Campus-wide, 42 percent of the female and 43 percent of the male faculty in the assistant professor class of 1973 were tenured, 33 percent of the women vs. 40 percent of the men in the class of 1975 were tenured, and 25 percent of the women vs. 27 percent of the men in the class of 1977 were tenured. A great deal more variation arises by division, in large part because of the small numbers of women in many of the cells. Of those who were not tenured, most men and women terminated their employment. For all three classes combined, 43 percent of the men and 48 percent of the women who terminated without tenure had done so after three years in the assistant professor rank. After four years the rates were 62 percent for men and 52 percent for women; after five years, 77 percent for men and 70 percent for women; and after six years 98 percent for men and 100 percent for women.

The first research question asked whether tenure rates for male and female faculty were statistically significantly different. The chi-square test of significance revealed that, for the assistant professor classes (by class or division), none of the differences between male and female tenure rates was statistically significant.

The same results were obtained when highest degree was controlled. There were no statistically significant differences between male and female tenure rates for assistant professors with doctoral degrees. Eighty percent, or more, of both men and women in each class had doctorates.

The promotion rates for the assistant professor classes were very similar to their tenure rates. Campus-wide, 33 percent of the female and 41 percent of the male assistant professor class of 1973 were promoted to associate professor as of fall 1983; 33 percent of the women versus 40 percent of the men in the class of 1975 were promoted; and 25 percent of the women versus 26 percent of men in the class of 1977. Of course, most of those not promoted had terminated (ranging from 81 percent to 100 percent depending on the class).

As with the tenure rates, none of the chi-square tests to determine differences between male and female promotion rates (by class and division) revealed statistically significant differences. There also were no statistically significant differences when highest degree was controlled.

Time to Tenure and Promotion. Campus policy states that the maximum number of "clock" years to tenure is six. The number of calendar years to tenure could be greater than six if a mutual agreement were made to postpone the tenure review for

some specified period of time. For example, a leave-without-pay could be granted for a certain number of semesters, all or some of which could be designated as not counting as time in service toward tenure. None of the 12 women in the class of 1973 had leaves-without-pay (clock stopped), compared to four (six percent) of the men. In the classes of 1975 and 1977, however, women seemed to have been granted leaves-without-pay which postponed tenure review at slightly higher rates than the men. About 12 percent of the women compared to nine percent of the men in the class of 1975 and 11 percent of the women compared to five percent of the men in the class of 1977 had at least one semester of leave-without-pay while the tenure clock stopped. Regardless of sex, most of the leaves granted were for one or two semesters. The reasons for leaves were not available.

To answer the second research question (Are there significant differences in time to tenure between male and female faculty?), the t-test was used. Table 3 compares the number of clock years to tenure and mean number of clock years for men and women in the three class years. Although men in each class tended to reach tenure earlier than the women, none of the sex differences in mean number of years was statistically significant at the $p \leq .05$ level. In addition to there being no statistically significant differences in clock years to tenure, there also were no statistically significant differences in calendar years, and in calendar and clock years, when controlled by highest degree. Among those with doctorates, there still were no statistically significant differences in time to tenure.

Analyses similar to those for time to tenure were performed for time to promotion from assistant to associate professor. Men seem to be more likely than women to be promoted early, but the difference was not statistically significant except for the class of 1973. Women in the class of 1973 were promoted later than the men, even though there was no statistically significant difference in their time to tenure.[4] The differences between mean time to promotion for men and women in the classes of 1975 and 1977, however, were not statistically significant. Controlling for highest degree, the same results are obtained: statistically significant differences existed only for the class of 1973.

Statistical analysis of time to tenure and promotion was not done by academic division because of the small numbers of women. In fact, because of empty cells, comparisons could be made only for three of the five divisions in each class. The divisions with the shortest time to tenure and promotion were ALSC, MPSE and HUCR. Most of the women, however, were in BSOS and A & H.

Table 3

Number of Clock Years to Tenure for Assistant Professors

(Cumulative Numbers and Percentages)

	Cohort Class Year					
	1973		1975		1977	
Tenured after:	Men	Women	Men	Women	Men	Women
1 year	0 (0%)	0 (0%)	1 (2%)	0 (0%)	1 (2%)	0 (0%)
2 years	1 (2%)	0 (0%)	3 (5%)	0 (0%)	3 (5%)	0 (0%)
3 years	5 (8%)	0 (0%)	7 (11%)	2 (8%)	5 (9%)	1 (4%)
4 years	12 (19%)	0 (0%)	11 (17%)	2 (8%)	7 (13%)	1 (4%)
5 years	25 (40%)	4 (33%)	25 (38%)	6 (25%)	13 (24%)	6 (21%)
6 years	27 (43%)	5 (42%)	26 (40%)	8 (33%)	15 (27%)	7 (25%)
Total in Class	63 (100%)	12 (100%)	65 (100%)	24 (100%)	55 (100%)	28 (100%)
Mean number of clock years to tenure	4.4	5.2	4.2	4.8	4.1	4.9

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Time to tenure (clock years) and time to promotion were also analyzed using a hierarchical multiple regression procedure. For the 85 assistant professors who were tenured and promoted, separate regressions were run to explain variation in time to tenure and time to promotion. The independent or explaining variables included: class year, division, highest degree, years since highest degree, age, and sex. The variables were entered into the regression equation in the above order, with sex entering last, in order to determine the effect of sex after controlling for class year, division, degree, time since degree, and age.

In neither regression analysis did sex add significantly to the proportion of variance (R^2 value) explained by the variables included in the regression equation after controlling for the other variables. The F value (a measure of the incremental importance of a variable) for the change in R^2 after entering the sex variable in the first regression (clock years to tenure) was 3.39 (p=.07), not significant at the .05 level. In the second regression (time to promotion), the F value for the change in R^2 attributed to sex was 2.04 (p = .16) -- also not statistically significant. Table 4 shows the standardized beta coefficients and their associated t-values for all the variables in the last step of both regression analyses.

The standardized coefficients show the relative effect on the dependent variable (time to tenure or promotion) of each independent variable, controlling for the other variables in the equation. Two variables were statistically significant in explaining time to tenure in clock years: the Division of Mathematical and Physical Sciences and Engineering (MPSE) and age. Compared to the other divisions, assistant professors in MPSE were tenured significantly earlier but not promoted significantly earlier. Not surprisingly, the younger the assistant professor the longer it took to be tenured. Age was the only statistically significant variable in the promotion regression, with younger assistant professors taking significantly longer than older peers to be promoted to the associate professor rank. The age variable in these regressions could be acting as a proxy for years of prior academic experience at other institutions, but this information was not available for the current study. In both regressions the variables explained only about 29 to 30 percent of the variance in time to promotion and tenure. This means that more than two-thirds of the variance was left unexplained.

Trends over Time. The third research question asked whether there are any increasing or decreasing trends, by sex, for the average number of years to tenure and promotion or for tenure and promotion rates. As Figure 1 shows, there has been a decline in tenure and promotion rates, campus-wide, for both male and female assistant professors between 1973 and 1977. Six years after appointment to the assistant professor

Table 4

Regressions Explaining Time to Tenure and Promotion:
Assistant Professor Classes

Variable	Clock Years To Tenure		Calendar Years To Promotion	
	BETA	t value	BETA	t value
Class of 1977	-.07379	- .623	-.09568	- .811
Class of 1975	-.02838	- .231	-.05136	- .420
MPSE	-.26876	-2.080*	-.21355	-1.660
BSOS	-.02792	- .222	.00165	.013
HUCR	-.03695	- .280	-.01919	- .146
A & H	.12871	.819	.26574	1.699
Highest Degree: PhD	.00913	.070	.08615	.668
Years Since Highest Degree	-.11186	- .886	-.08457	- .673
Age	-.37963	-3.196*	-.36558	-3.092*
Sex: Male=1, Female=2	.20762	1.841	.16031	1.428
Multiple R	.54133		.54732	
R^2	.29303		.29956	
F value	3.06727		3.16479	
p	.0026*		.0020*	
Df	10,74		10,74	

*Significant at $p \leq .05$ level.

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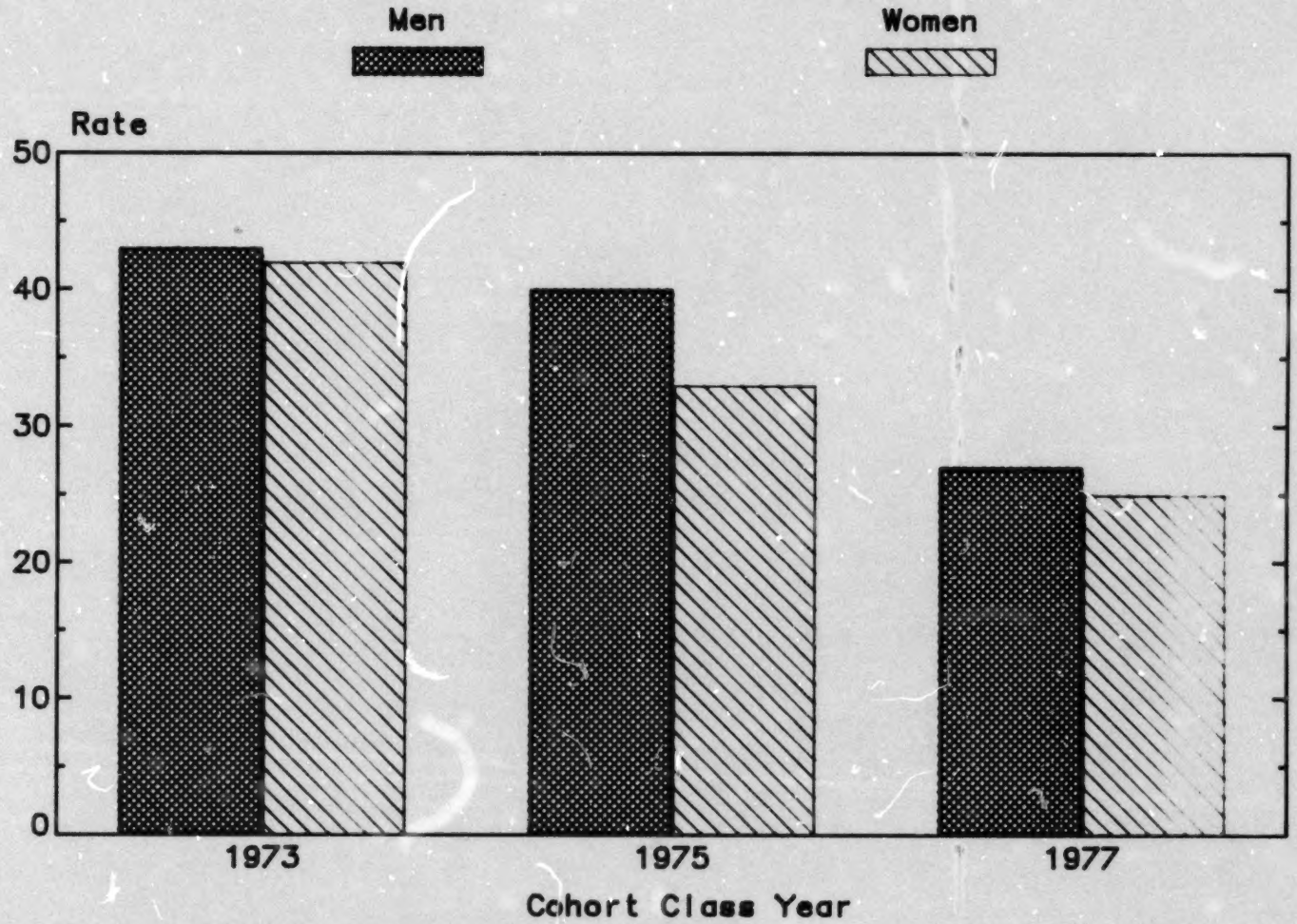

Figure 1. Assistant professor tenure rates. (G5AIRP01) 01S/0385

rank, the proportions of men and women tenured declined from 43 percent and 42 percent, respectively, for the class of 1973 to 40 percent and 33 percent, respectively, for the class of 1975. However, for the class of 1977 the rates had declined more substantially to 27 percent of the men and 25 percent of the women. The decline in promotion rates was very similar to that for tenure rates. Mean number of years to tenure (clock years) and promotion from 1973 to 1977 also showed a steady decline for men. The respective means for women declined for tenure, but stayed about the same for promotion during this period. ALSC, MPSE and HUCR reveal the shortest average time to tenure and promotion for assistant professors. Women, however, tend to be in the other divisions (BSOS and A & H).

Hired as Associate Professor

This very small group of faculty included men and women who were appointed (not promoted) to tenure-track positions as associate professors in 1973, 1975 or 1977. These appointments usually require that the first year be a probationary year with a tenure decision rendered at the end of the first academic year. As in the case of the assistant professor, tenure review can be postponed by mutual agreement.

Women were represented in only one of the three classes: class of 1977. In that class there were four men and two women, all of whom were tenured. Only one, however, a woman, was promoted to professor by fall 1983. Comparing men and women in all three classes combined, there was no statistically significant difference in number of years to tenure (calendar or clock) or number of years to promotion. Because of such small numbers of both men and women in this category, statistical analyses could not be run by class year, division, or highest degree. None of the study's research questions can be answered with confidence for this small group of faculty.

Promoted to Associate Professor

There were also very few women in the three classes promoted to the associate professor rank in 1973 (6 women, 45 men), 1975 (5 women, 34 men), and 1977 (4 women, 22 men). Table 5 shows the promotion to professor rates for each class, by sex and division. Because of such small numbers of women, comparisons by division are not meaningful. With all three classes combined, by fall 1983, 20 percent of the women (3 out of 15) compared to 30 percent of the men (30 out of 101) were promoted to full professor, however, none of the comparisons by class, or with all three classes combined, was statistically significant. Therefore, like the assistant professor classes, there were no statistically significant differences in the promotion rates for male and female associate professors.

Table 5

Promotion Rates of Associate Professors Who Had Attained Rank by Promotion, by Sex and Cohort Class Year (as of Fall 1983)

Division[a]	Class of 1973				Class of 1975				Class of 1977			
	Men		Women		Men		Women		Men		Women	
	Promoted to Professor	Total	Promoted to Professor	Total	Promoted to Professor	Total	Promoted to Professor	Total	Promoted to Professor	Total	Promoted to Professor	Total
1. ALSC	4 (36%)	11	0 (-)	0	5 (42%)	12	0 (-)	0	0 (0%)	3	0 (0%)	1
2. MPSE	9 (56%)	16	1 (100%)	1	5 (71%)	7	0 (0%)	1	2 (22%)	9	0 (-)	0
3. BSOS	0 (0%)	5	0 (-)	0	0 (0%)	3	0 (0%)	1	1 (50%)	2	0 (-)	0
4. A & H	2 (22%)	9	0 (0%)	2	1 (14%)	7	0 (0%)	1	1 (20%)	5	0 (0%)	1
5. HUCR	0 (0%)	3	0 (0%)	3	0 (0%)	5	2 (100%)	2	0 (0%)	3	0 (0%)	2
6. COUNS[b]	0 (0%)	1	0 (-)	0	0 (-)	0	0 (-)	0	0 (-)	0	0 (-)	0
TOTAL	15 (33%)	45	1 (17%)	6	11 (32%)	34	2 (40%)	5	4 (18%)	22	0 (0%)	4

[a]ALSC = Agricultural and Life Sciences
MPSE = Mathematical and Physical Sciences and Engineering
BSOS = Behavioral and Social Sciences
A & H = Arts and Humanities
HUCR = Human and Community Resources

[b]The Counseling Center is in a nonacademic division.

A slightly greater percentage of the men (30 percent versus 25 percent of the women) had terminated before being promoted. These percentages varied by class year, however. For the class of 1975, for instance, all of the women who had not been promoted as of fall 1983 (3) were still employed at UMCP compared to 78 percent (18) of the men. The reasons for termination are unknown.

For those who were promoted (30 men and 3 women in all three classes combined), the mean number of years from associate to full professor was 6.03 for men and 6.33 for women. The range for men was from two to nine years with most being promoted after five years or more. Of the three women promoted, one was promoted in five years, one in six years and one in eight years. There were too few male and female associate professors to analyze by division, highest degree, or class year. The length of time to promotion, therefore, did not vary significantly for male and female associate professors in the aggregate (i.e., all three classes combined). Because of the small numbers of men and especially women, trends for promotion rates and time to promotion could not be statistically analyzed with confidence. With both sexes combined, the percentage promoted to professor six years or less after attaining associate professor rank dropped from 25 percent for the class of 1973 to 13 percent for the class of 1975, but increased slightly, to 15 percent, for the class of 1977.

Review and Discussion

The purpose of this study was to determine whether rates of, or time to, promotion and tenure for tenure-track faculty at UMCP are sex linked. The limited research literature on promotion and tenure issues is not sufficient to provide much guidance for research in this area.

The analytical problems include: 1) the small numbers of faculty, especially women, in the analytical groups; and 2) the lack of some key variables descriptive of the tenure and promotion decision process.

A study of tenure and promotion decisions should use the academic department as the unit for analysis because it is at the department level where the initial decisions are made.[5] Because of the small numbers of women, not only was statistical analysis by department impossible, but also, in most cases, analysis by division. This means that "no significant differences" found at a more aggregated level (campus or division) could mask differences within less aggregated levels (department). Conversely, differences that might be found at more aggregated levels could be attributable solely to one or a few sub-units and should not be interpreted as systemic. In addition, because of the small numbers in many of the cross-tabulation matrix cells, corrected chi-squares (Yates' continuity or Fisher's exact test) rather than raw chi-squares had to be used to

analyze tenure and promotion rates. These corrected chi-square tests are more likely than the raw chi-square tests to be subject to Type II errors (not detecting differences when there really are differences).

Another analytical constraint is the lack of data concerning some key variables necessary to understand tenure and promotion decisions. Tenure and promotion decisions are based on teaching, research and service, yet no data were available on teaching and research (neither quantity nor quality) and very little were available on service. Other potential variables include prior academic experience, quality of graduate school, national or international reputation.

The study examined promotion and tenure rates for nine classes of faculty: three "Assistant Professor" classes (1973, 1975 and 1977), three "Hired as Associate Professor" classes, and three "Promoted to Associate Professor" classes. Combining all three years, there were 247 cases in the "Assistant Professor" classes (183 men and 64 women), 20 cases in the "Hired as Associate Professor" classes (18 men and 2 women) and 51 cases in the "Promoted to Associate Professor" classes (45 men and 6 women).

Although the study indicated no statistically significant sex differences in faculty tenure and promotion rates in the aggregate and at the divisional level, top campus administrators mandated that monitoring of tenure and promotion rates be continued, especially at the departmental level. The political sensitivity of the issue on campus along with the lower (though not significant) overall tenure rates for female compared to male assistant professors in the three classes studied contributed to this administrative decision. Results from more recent cohort data (classes of 1978 through 1980) should be available within the year.

Perhaps the major finding of this study is the sharp decline in percentages of assistant professors, men and women, who achieved tenure and were promoted over the years studied. It is unclear what this finding means for the university. Was this reduction in tenure and promotion rates the result of a policy decision designed to counter stagnated funding levels resulting from slowed enrollment growth while allowing for the improvement of faculty quality? Did it merely reflect the market for PhD-holders in this period when PhD-production far outran demand for them in certain academic fields? Is the general feeling of female faculty on campus that women are less likely than men to be tenured and promoted related to this trend of declining rates for everyone? Has the trend continued or has the university reached some steady level of tenuring and promoting about 25 percent of the faculty? Has this trend been experienced by other faculty in similar universities? If so, what effect, if any, will extreme competition have on the quality of the American professorate in the closing decades of the

twentieth century? If not, what effect have the lower tenure and promotion rates had on UMCP's recruitment and retention of young faculty who may be concerned about their chances for tenure and promotion?

To answer the above questions the campus must study more recent cohorts (or classes) of assistant and associate professors. Additionally, comparisons should be made to similar cohorts of tenure track faculty at other institutions to determine if these results are unique to UMCP.

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Footnotes

[1]One problem with the study, however, is the assumption that rank is a continuous variable with equal intervals (from 1 = Professor to 4 = Instructor).

[2]Like the Astin and Bayer study, a problem with the State board's analysis is the assumption that rank is a continuous variable with equal intervals.

[3]In 1984 this policy changed. Mandatory tenure and promotion review for assistant professors was changed from the fifth to sixth academic year.

[4]With so many statistical tests, however, there is a high probability that this one significant result was obtained by chance (Type I error). This result did not persist in the regression analysis to explain differences in time to promotion.

[5]Tenure and some promotion decisions are reviewed by each college, division and by the Academic Vice Chancellor. In addition, they must be approved by the Chancellor, and the President, but the initial recommendation must come from the department.